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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,186	12/03/2001	Hyun Kyun Kim	P-0305	4452

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EXAMINER

PHAM, TUAN

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,186

Applicant(s)

KIM, HYUN KYUN

Examiner

TUAN A PHAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/03/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1- 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Markow et al. (U.S. Patent No.: 6,459,942, hereinafter, "Markow") in view of Lee et al. (U.S. Patent No.: 5,450,312, hereinafter, "^{LEE}Markow").

Regarding claim 1, Markow teaches a speaker phone system (see figure 4), comprising: a CODEC adapted to convert a digital speech signal into an analog speech signal (see figure 4, CODEC 34, col.4, ln.11-36); an equalizer adapted to adjust a timbre of the converted analog speech signal inputted thereto from the CODEC (see

figure 4, equalizer 30, col.4, ln.11-36); and a DSP supply the digital speech signal received from his/her counterpart's mobile communication terminal to the CODEC (see figure 4, DSP 32, col.4, ln.11-36).

It should be noticed that Markow fails to clearly teach a CPU adapted to supply a timbre control signal corresponding to a frequency band set by a user to the equalizer. However, Lee teaches such features (see figure 2, microcomputer 30, timbre mode coefficient table 40, digital equalizer 50, col.3, ln.16-65) for a purpose of retrieving the timbre coefficient based upon the output of digital equalizer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of a CPU adapted to supply a timbre control signal corresponding to a frequency band set by a user to the equalizer, as taught by Lee, into view of Markow in order to improve the sound in the communication system.

Regarding claim 2, Markow further teaches the speaker system further comprising a speaker adapted to reproduce the speech signal applied thereto from the equalizer (see figure 4, speaker 14, equalizer 30, col.4, ln.11-36).

Regarding claim 3, Markow further teaches the speaker system wherein the equalizer comprises a plurality of active filters (see figure 4, equalizer 28, filter network F, col.5, ln.52-67).

Regarding claim 4, Lee further teaches the frequency band set on a menu of the mobile communication terminal by the user (see figure 4, timbre table 40, col.3, ln.47-58).

Regarding claim 5, Markow teaches a speaker phone system (see figure 4), comprising: a microphone adapted to input a transmitting speech signal (see figure 4, MIC 16, col.4, ln.11-36); a speaker adapted to reproduce a received speech signal (see figure 4, speaker 14, col.4, ln.11-36); a CODEC adapted to perform an analog-digital conversion for the transmitting speech signal and a digital-analog conversion for the received speech signal (see figure 4, CODEC 34, col.4, ln.11-36); a CPU adapted to generate a control signal according to a frequency band (see figure 4, DSP 32, col.4, ln.11-36); the equalizer being connected to the microphone (see figure 4, MIC 16, equalizer 28), the speaker and the CODEC in such a fashion that the equalizer is disposed between the microphone/speaker and the CODEC (see figure 4, CODEC 34, speaker 14, MIC 16, equalizers 28, 30).

It should be noticed that Markow fails to clearly teach an equalizer control section adapted to generate a timbre control signal according to the control signal of the CPU; and an equalizer adapted to adjust a frequency band of the transmitting/received speech signals according to the timbre control signal inputted thereto from the equalizer control circuit. However, Lee teaches such features (see figure 2, microcomputer 30, timbre mode coefficient table 40, digital equalizer 50, col.3, ln.16-65) for a purpose of retrieving the timbre coefficient based upon the output of digital equalizer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of an equalizer control section adapted to generate a timbre control signal according to the control signal of the CPU; and an equalizer adapted to adjust a frequency band of the transmitting/received

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speech signals according to the timbre control signal inputted thereto from the equalizer control circuit, as taught by Lee, into view of Markow in order to improve the sound in the communication system.

Regarding claim 6, Lee further teaches the frequency band set on a menu of the mobile communication terminal by the user (see figure 4, timbre table 40, col.3, ln.47-58).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Larsen et al. (U.S. Patent No. 6,381,468), Nair et al. (U.S. Patent No. 5,911,115), Andruzzi, Jr. (U.S. Patent No. 5,436,933), and Lai (U.S. Patent No. 6,678,318) are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s). These references are also concerned for supporting the system and method for time domain equalization in discrete multi-tone transceivers.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (703) 305-4987. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (703) 305-4708 and

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist, tel. No. 703-305-4700).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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January 14, 2005
Examiner

Tuan Pham


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600